

REMARKS

Claims 1-5, 7-8, and 10-22 are all the claims presently pending in the application. Claims 1-4, 7, 13, and 19-20 are amended to more clearly define the invention, claims 6 and 9 are canceled and claims 21-22 are added. Claims 1, 3, and 19-20 are independent.

These amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

Applicants also notes that, notwithstanding any claim amendments herein or later during prosecution, Applicants' intent is to encompass equivalents of all claim elements.

Applicants gratefully acknowledge that claims 13-18 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112 and to include all of the limitations of the base claim and any intervening claims. However, Applicants respectfully submit that all of the claims are allowable.

Claims 1-7 and 11-12 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Coughlin, Jr. et al. (U.S. Patent No. 6,493,257 B1). Claims 1-2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Forsyth (U.S. Patent No. 5,327,566). Claims 1-2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Trimberger, et al. (U.S. Patent No. 5,844,422). Claims 1-2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Alwais (U.S. Patent No. 6,362,675). Claims 3-12 and 19-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over either Forsyth or Trimberger, et al. Claims 1-12 and 19-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eliason (U.S. Patent No. 6,650,158) or

Chen (U.S. Patent No. 5,815,431) in view of any one of Coughlin, Jr. et al., Alwais, Trimberger, et al., and Forsyth.

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

An exemplary embodiment of the claimed invention, as defined by, for example, independent claim 1, is directed to a state saving circuit that includes a first latch capable of performing a desired operation, a second latch capable of restoring the state of the first latch upon the powering up of the first latch. An integrated control signal determines whether the second latch is in one of a state saving mode and a state restoring mode. The second latch being powered by a power supply.

Conventional state saving latches, such as those disclosed by the applied references, require more than one control signal to accomplish both a save and a restore.

In stark contrast, the present invention provides an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode. This feature is important because the present invention does not require a separate clock signal to restore the state of any attached device. Thus, the present invention does not suffer from the delays of conventional state saving latches and does not adversely impact the responsiveness of the device that may have its state restored by the inventive state saving latch ([0021]).

II. THE 35 U.S.C. § 112, SECOND PARAGRAPH REJECTION

The Examiner alleges that claims 2-20 are indefinite. Regarding claims 2, 6, and 9, while Applicant submits that such would be clear to one of ordinary skill in the art taking the present Application as a whole, to speed prosecution claim 2 has been amended and claims 6 and 9 are canceled in accordance with Examiner Wells' very helpful suggestions.

Regarding claims 3 and 19-20, the Examiner alleges that "the cut-off control device is not a separate element from the state saving latch, i.e., it is an integral part of the state saving latch, and thus the two should not be recited as separate elements." Applicant respectfully traverses this rejection of claims 3 and 19-20.

The specification and figures of the present application clearly illustrate a state saving circuit having a state saving latch and a cut-off control device. As clearly explained in the specification at, for example, [0036], and as clearly illustrated by, for example, Figure 3, the state saving circuit 300 includes "a cut-off control that includes CMOS transistor pair 310 and transistors 306, 308, 312, and 314 that are controlled by input FENCEN. CMOS transistor pair 310 (also known as an inverter) and state saving CMOS transistor pairs 316 and 318 use uninterruptible power supply VDDG." (Emphasis added).

In other words, the state saving circuit that is illustrated by Figure 3 clearly includes a state saving latch and a cut-off control device. Thus, while these two elements are integral parts of the state saving circuit, these two elements are separate and discrete elements of the state saving circuit.

Therefore, Applicant respectfully submits that claims 3 and 19-20 are not mis-descriptive.

In view of the foregoing, the Examiner is respectfully requested to withdraw this rejection.

III. THE PRIOR ART REJECTIONS

A. The Coughlin Jr. et al. reference

Regarding the rejection of claims 1-7 and 11-12, the Examiner alleges that the Coughlin Jr. et al. reference teaches the claimed invention. Applicants submit, however, that there are elements of the claimed invention which are neither taught nor suggested by the Coughlin Jr. et al. reference.

The Coughlin Jr. et al. reference does not teach or suggest the features of the present invention including an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode. As explained above, this feature is important for obviating the need for a separate clock signal, for improving the speed with which a state may be restored and, therefore, improves the responsiveness of any device attached to the present invention.

Rather, and in stark contrast, the CMOS state saving latch that is disclosed by the Coughlin Jr. et al. reference uses a FENCEN signal for saving (and preserving) the state and an additional second control signal B, for restoring the state to the first latch. Therefore, the Coughlin Jr. et al. reference does not disclose an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode.

Therefore, the Coughlin Jr. et al. reference does not teach or suggest each and every

element of the claimed invention and, the Examiner is respectfully requested to withdraw this rejection of claims 1-7, and 11-12.

B. The Forsyth reference

Regarding the rejection of claims 1-2, the Examiner alleges that the Forsyth reference teaches the claimed invention. Applicants submit, however, that there are elements of the claimed invention which are neither taught nor suggested by the Forsyth reference.

The Forsyth reference does not teach or suggest the features of the present invention including an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode. As explained above, this feature is important for obviating the need for a separate clock signal, for improving the speed with which a state may be restored and, therefore, improves the responsiveness of any device attached to the present invention.

Rather, and in stark contrast, the Forsyth reference discloses that “SAVE” is required for saving a state, and that both a “RESTORE” and “CLOCK” are required to restore a state. Therefore, the Forsyth reference does not disclose an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode.

Therefore, the Forsyth reference does not teach or suggest each and every element of the claimed invention and, the Examiner is respectfully requested to withdraw this rejection of claims 1-2.

C. The Trimberger et al. reference

Regarding the rejection of claims 1-2, the Examiner alleges that the Trimberger et al. reference teaches the claimed invention. Applicants submit, however, that there are elements of the claimed invention which are neither taught nor suggested by the Trimberger et al. reference.

The Trimberger et al. reference does not teach or suggest the features of the present invention including an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode. As explained above, this feature is important for obviating the need for a separate clock signal, for improving the speed with which a state may be restored and, therefore, improves the responsiveness of any device attached to the present invention.

Rather, and in stark contrast, the Trimberger et al. reference discloses that “Capture (13)” is required in addition to “SAVE STATE” in order to restore a state and that “CLK” is required in addition to “SAVE STATE” to restore the state to the other latch. Therefore, the Trimberger et al. reference does not disclose an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode.

Therefore, the Trimberger et al. reference does not teach or suggest each and every element of the claimed invention and, the Examiner is respectfully requested to withdraw this rejection of claims 1-2.

D. The Alwais reference

Regarding the rejection of claims 1-2, the Examiner alleges that the Alwais reference teaches the claimed invention. Applicants submit, however, that there are elements of the claimed invention which are neither taught nor suggested by the Alwais reference.

The Alwais reference does not teach or suggest the features of the present invention including an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode. As explained above, this feature is important for obviating the need for a separate clock signal, for improving the speed with which a state may be restored and, therefore, improves the responsiveness of any device attached to the present invention.

Rather, and in stark contrast, the Alwais reference discloses that “Capture (13)” is required in addition to “SAVE STATE” in order to restore a state and that “CLK” is required in addition to “SAVE STATE” to restore the state to the other latch. In fact, Figure 2 of the Alwais reference illustrates a control signal 70 for the save operation and control signal 68 for the restore operation. Therefore, the Alwais reference does not disclose an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode.

Therefore, the Alwais reference does not teach or suggest each and every element of the claimed invention and, the Examiner is respectfully requested to withdraw this rejection of claims 1-2.

E. The 103(a) Forsythe reference or Trimberger et al. reference rejection

Regarding the rejection of claims 3-12 and 19-20, the Examiner alleges that it would have been obvious to modify either the Forsythe reference or the Trimberger et al. reference to form the claimed invention. Applicant submits, however, that the alleged modification(s) would not teach or suggest each and every element of the claimed invention.

As explained above, neither of the Forsythe reference and the Trimberger et al. reference teaches or suggests the features of the present invention including an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode. This feature is important for obviating the need for a separate clock signal, for improving the speed with which a state may be restored and, therefore, improves the responsiveness of any device attached to the present invention.

Therefore, the Examiner is respectfully requested to withdraw this rejection of claims 3-12 and 19-20.

F. The Eliason reference or the Chen reference in view of any one of the Coughlin Jr. et al. reference, the Alwais reference, the Trimberger et al. reference and the Forsyth reference.

The Examiner alleges that any one of the Coughlin Jr. et al. reference, the Alwais reference, the Trimberger et al. reference and the Forsyth reference would have been combined with either of the Eliason reference or the Chen reference to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if

combined, the combination would not teach or suggest each and every element of the claimed invention.

None of the applied references teaches or suggests the features of the present invention including an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode. As explained above, this feature is important for obviating the need for a separate clock signal, for improving the speed with which a state may be restored and, therefore, improves the responsiveness of any device attached to the present invention.

As explained above, none of the Chen reference, the Coughlin Jr. et al. reference, the Alwais reference, the Trimberger et al. reference and the Forsyth reference teaches or suggests the features of the present invention including an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode.

The Eliason reference does not remedy this deficiency.

The Eliason reference discloses a ferroelectric memory block that performs a state-saving function. In all of the figures of the Eliason reference there is a control bus that is labeled "FERROCTL." "The FERROCTL bus is made up of three signals: PL, WL and optionally WLB." (Col. 10, lines 12-13). Therefore, the Eliason reference does not teach or suggest the features of the present invention including an integrated control signal that determines whether the second latch is in one of a state saving mode and a state restoring mode.

Therefore, the Examiner is respectfully requested to withdraw this rejection of claims 1-12, and 19-20.

Attachments: Replacement Sheet (1)
Annotated Sheet Showing Change (1)

AMENDMENTS TO THE DRAWINGS:

The attached sheet of drawings includes changes to Figure 1. This sheet, which includes Figure 1, replaces the original sheet including Figure 1. In Figure 1, the previously omitted reference numeral 108 has been added.

FIG. 1
Prior Art

